

JOINT SHIPBOARD HELICOPTER INTEGRATION PROCESS (JSHIP)



The Joint Shipboard Helicopter Integration Process (JSHIP) Joint Task Force was chartered to develop and evaluate a standard process for the integration of multi-Service rotorcraft, aircrews, and embarked units aboard air-capable U.S. Navy ships. The JSHIP Joint Task Force conducts flight tests, critical measurements, engineering analyses, and simulations to provide recommended changes to Joint tactics, techniques, and procedures; training syllabi; and rotorcraft/ship designs that will enhance safe, rotorcraft/ship interoperability. Only Special Operations Forces (SOF) and Army helicopters will normally be targeted for schedule inclusion. National Guard assets will also be considered if helicopter type and model are available. Expected products from the JSHIP program include expanded launch and recovery flight envelopes for 12 helicopter/ship combinations and ship certification of 12 specific helicopter/ship pairs.

BACKGROUND INFORMATION

The JSHIP Joint Test and Evaluation (JT&E) program was chartered by OSD on July 22, 1998, following the completion and acceptance of a Joint Feasibility Study initiated in June 1997. All Services and Unified Commands are designated as participants, with the Navy as the lead service and executive agent for the program. A General Officers Steering Committee was established to provide the Joint Test Director a forum for senior-level counsel and advice. DOT&E and DD(DT&E), S&TS provided co-signature approval of the Program Test Plan on September 30, 1999.

Four separate Dedicated at Sea Tests (DASTs) were successfully conducted in FY00. The test tempo provided heavy volumes of data and proved to be a major task for the JSHIP program to process, analyze, prepare individual final test reports, and adhere to the anticipated schedule. An internal review of the program objectives and schedules identified the need to extend the program for an additional year. Authorization to extend the program through FY03 was granted on June 10, 2000.

JSHIP is leading the development and verification of the Dynamic Interface Modeling and Simulation System (DIMSS) software effort. DIMSS is a joint development with the NASA Ames Vertical Motion Simulator (VMS) group to perfect a high fidelity, dynamic cockpit pilot trainer for UH-60A/LHA training simulations. The Army and SOF commands have expressed interest in the use of DIMSS for training. Separately, the DIMSS software will provide the Navy with a full tool set for air-

wake modeling and wind-over-the-deck analysis and prediction. The DIMSS effort spanned FY00 and should complete by 1QFY02.

To date, the JSHIP program has conducted six JSHIP Warfighter Conferences with multi-Service representation to review program progress, identify test asset requirements, and to more closely identify current issues as viewed by the operating forces.

TEST & EVALUATION ACTIVITY

DIMSS software development has progressed to the point where data collected on the early DAST events is being used to validate the DIMSS pilot trainer at NASA Ames. A month long simulation assessment was conducted in June 2001 with ten pilots from all services flying the trainer. Another short assessment was conducted in August to verify changes made as a result of the first assessment. Army funds were provided to complete the assessment because of the heightened interest of the Army in using the DIMSS software as an integral part of its flight simulator pilot training.

Five DAST events occurred in FY01. DAST-1A was conducted in November 2000 with Army UH-60A and CH-47D aircraft on LHA 5, USS Peleliu. The main focus of the test was to gather more data to support DIMSS validation. DAST-4 occurred in February 2001 with SOF MH-53J, SOF CH-47D, and Army OH-58D aircraft onboard CVN 69, USS Eisenhower. DAST-5 occurred in May 2001 onboard LSD 51, USS Oak Hill and focused on the Army AH-64D. DAST-6 occurred in July 2001. DAST-6 involved 11 AH-64, CH-47D, and UH-60A aircraft from the Texas Army National Guard operating from LHA 1, USS Tarawa off Southern California. The National Guard provided approximately 250 personnel to support the test that focused on use of the procedures and processes developed to date by the JSHIP program. DAST-7 involving Texas Army National Guard CH-47D, AH-64, and UH-60A aircraft on the smaller decked LPD 6, USS Duluth, was started on July 8 but was cancelled on July 10 due to a ship boiler failure. Collection of test data was limited due to the cancellation.

The Dynamic Interface Test Reports and Final Reports for DAST-1 through DAST-4 have been published and released to all participating Services. These reports and special reports, such as the SD-2 Spotting Dolly Report, clearly identify areas of concern and procedures/equipment that should be avoided. Alternative procedures/equipment have also been recommended where appropriate.

TEST & EVALUATION ASSESSMENT

The JSHIP program has documented results of tests in the form of data bases to be available to future commanders. The data bases include specifics on weapon susceptibility to RF emissions, spare parts and repairs capabilities of each type host ship, and operating procedures. Should an Army or SOF commander be tasked with shipboard operations, he can identify compatibility, procedures, training, and safety issues that must be addressed prior to and during deployment on the ship. This information repository was not available during earlier joint shipboard operations in Granada or Haiti. The beta-test of the data was the purpose of the DAST-6 evolution aboard the Tarawa in July 2001.

The DIMSS development and test demonstrations have provided the Army and SOF pilot training communities with a high fidelity trainer to safely teach UH-60 pilots the flight procedures necessary to operate with a LHA. More importantly, the actual test data collected to validate the

software will provide the Navy with a potent tool to evaluate and expand flight envelopes for rotorcraft/ship operations at a cost well below the current \$500,000 per ship type currently incurred.

DOT&E strongly supports the JSHIP program objective to test and document helicopter/ship pair interoperability to support future safe, Joint Service operations. Although the actual DAST evolutions are more developmental than operational tests, the JSHIP program successfully captures multi-Service participation to produce valuable JSHIP products for future operational use. The “legacy” data bases will be of future value. The DIMSS effort to both develop an operational flight trainer and use the software as a tool to support future Dynamic Interface test efforts is a noteworthy and value-added example of successfully integrating modeling and simulation into acquisition, testing and training.

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